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CITATION:

Dawa, Drolma. Study on classifiers in Darmdo Minyag. Proceedings of the 51st International Conference on Sino-Tibetan Languages and Linguistics 2018: 15.

ISSUE DATE:

2018-09

URL:

<http://hdl.handle.net/2433/235270>

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# Study on numerals and classifiers in Darmdo Minyag

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## 1 Darmdo Minyag

Darmdo Minyag is an ethnic language spoken by Tibetans living in the western side of Mt Gongkar, Sichuan Province, China. It characterises most Minyag Tibetans, and it is unintelligible with Khams Tibetan, Amdo Tibetan, and Ersu; among the speakers of Khams Tibetan, it is called *rong skad*. It has received attention from academia since the beginning of the 20<sup>th</sup> century.

Darmdo Minyag together with Shimian Minyag have been counted as the languages spoken by Minyag Tibetan people; each autonym is mu<sup>33</sup>ŋa<sup>55</sup>wæ and mu<sup>33</sup>ŋa<sup>55</sup> respectively. This article deals with the former, which is distributed in Kangding (Jiju, Gonggashan, Pubarong, Shade, Pengbuxi), Jiulong (Tanggu), and Yajiang (Zhusang, Gala), and among them the dialect of Pengbuxi is a research site.

## 2 Numerals of Darmdo Minyag

There are five categories: cardinal, ordinal, fraction, multiple, and approximate.

### 2.1 Cardinal numbers

Darmdo Minyag has two systems: Khams Tibetan type and native type. I present the latter system as follows.

#### 1. From 1 to 9: cardinal number+lo

one	tɕ <sup>53</sup> lo <sup>33</sup>	six	tɕ <sup>h</sup> u <sup>53</sup> lo <sup>33</sup>
two	nə <sup>55</sup> lo <sup>55</sup> / tæ <sup>31</sup> dze <sup>55</sup>	seven	ŋu <sup>53</sup> lo <sup>33</sup>
three	so <sup>53</sup> lo <sup>33</sup>	eight	ɕao <sup>5</sup> ʔo <sup>33</sup>
four	rə <sup>53</sup> lo <sup>33</sup>	nine	gə <sup>53</sup> lo <sup>33</sup>
five	na <sup>55</sup> lo <sup>33</sup>		

There are nine roots (1 to 9), among which ‘two’ has two forms: nə<sup>55</sup>lo<sup>55</sup> and tæ<sup>31</sup>dze<sup>55</sup>. The latter form also has a meaning ‘a pair of’. All the numerals above are disyllabic, no monosyllabic form.

#### 2. From 10 to 19: ɦa +cardinal number+lo

ten	ɦa <sup>5</sup> ʔo <sup>55</sup> lo <sup>33</sup>	fifteen	ɦa <sup>5</sup> ʔa <sup>55</sup> lo <sup>33</sup>
eleven	ɦa <sup>5</sup> ʔi <sup>55</sup> lo <sup>33</sup>	sixteen	ɦo <sup>5</sup> tɕ <sup>h</sup> u <sup>33</sup> lo <sup>33</sup>
twelve	ɦa <sup>5</sup> ʔnə <sup>5</sup> ʔo <sup>33</sup>	seventeen	ɦo <sup>5</sup> ŋu <sup>33</sup> ʔo <sup>33</sup>
thirteen	ɦo <sup>5</sup> ʔo <sup>55</sup> lo <sup>33</sup>	eighteen	ɦo <sup>5</sup> ŋu <sup>33</sup> ʔo <sup>33</sup>
fourteen	ɦo <sup>5</sup> ʔə <sup>55</sup> lo <sup>33</sup>	nineteen	ɦo <sup>5</sup> ʔə <sup>55</sup> lo <sup>33</sup>

The form of ‘ten’ is ɦa<sup>5</sup>ʔo<sup>55</sup>lo<sup>55</sup>, however, from ‘eleven’, the element ‘ten’ is just ɦa<sup>5</sup>ʔ which has an allomorph ɦo<sup>5</sup>ʔ. The cardinal number ‘one’ for the one’s place also changes its sound.

### 3. From 20s to 40s:

twenty	nə <sup>3</sup> ʁud <sup>5</sup> ʁo <sup>3 3</sup>
twenty-one	nə <sup>3</sup> ʁud <sup>5</sup> ʁa <sup>5</sup> ʁo <sup>3 3</sup>
twenty-eight	nə <sup>3</sup> ʁud <sup>5</sup> ʁo <sup>5</sup> ʁo <sup>33</sup>
thirty-one	so <sup>5</sup> ʁud <sup>5</sup> ʁa <sup>5</sup> ʁo <sup>3 3</sup>
thirty-two	so <sup>5</sup> ʁud <sup>5</sup> ʁap <sup>5</sup> ʁzɛ <sup>33</sup>
thirty-eight	so <sup>5</sup> ʁud <sup>5</sup> ʁo <sup>5</sup> ʁo <sup>3 3</sup>
forty-one	rə <sup>55</sup> ʁud <sup>5</sup> ʁa <sup>5</sup> ʁo <sup>3 3</sup>
forty-three	rə <sup>55</sup> ʁud <sup>5</sup> ʁo <sup>5</sup> ʁo <sup>3 3</sup>

Based on the table above, Darmdo Minyag employs the decimal system. The construction is: ‘ten’s number’+ ʁud<sup>5</sup> ʁ(one’s number)+lo. The element ʁud<sup>5</sup> ʁis indispensable.

### 4. From 50s to 100:

fifty	ŋæ <sup>55</sup> ga <sup>5</sup> ʁo <sup>33</sup>
fifty-four	ŋæ <sup>55</sup> ga <sup>5</sup> ʁə <sup>5</sup> ʁlo <sup>33</sup>
sixty	tɛ <sup>h</sup> u <sup>5</sup> ʁja <sup>5</sup> ʁo <sup>33</sup>
sixty-five	tɛ <sup>h</sup> u <sup>5</sup> ʁja <sup>5</sup> ʁja <sup>55</sup> lo <sup>33</sup>
seventy	ŋu <sup>33</sup> ga <sup>53</sup> lo <sup>33</sup>
seventy-six	ŋu <sup>33</sup> ja <sup>5</sup> tɛ <sup>h</sup> u <sup>55</sup> lo <sup>33</sup>
eighty	ɛo <sup>5</sup> ʁja <sup>5</sup> ʁo <sup>33</sup>
eighty-seven	ɛo <sup>5</sup> ʁja <sup>53</sup> ŋu <sup>55</sup> lo <sup>33</sup>
ninety	ngə <sup>55</sup> ga <sup>5</sup> ʁo <sup>33</sup>
ninety-eight	ngə <sup>55</sup> ga <sup>5</sup> ʁo <sup>5</sup> ʁo <sup>33</sup>
ninety-nine	ngə <sup>55</sup> ga <sup>5</sup> ʁngə <sup>55</sup> lo <sup>33</sup>
hundred	ɦa <sup>33</sup> o <sup>5</sup> ʁja <sup>33</sup> lo <sup>33</sup>

The construction is: ‘ten’s number’+ ga<sup>5</sup> ʁ(one’s number)+lo<sup>33</sup>. The element ʁud<sup>5</sup> ʁis indispensable.

## 2.2 Ordinal numbers

The ordinal numbers in Darmdo Minyag is the same as Khams Tibetan, which is characterised by the first syllable as a<sup>55</sup> and the suffix pa or po. E.g.,

first	a <sup>55</sup> ta <sup>3</sup> bu <sup>5 3</sup>	third	a <sup>55</sup> soŋ <sup>5</sup> ʁa <sup>5 3</sup>
second	a <sup>55</sup> ŋi <sup>3</sup> ʁpa <sup>55</sup>	fourth	a <sup>55</sup> zɛ <sup>3</sup> ʁpa <sup>5 3</sup>

For month’s terms, Tibetan forms are used, i.e., Darmdo Minyag uses ordinal numbers: zla dang po ‘January’ and zla drug pa ‘June’.

## 2.3 Fraction expressions

Fraction expressions in Darmdo Minyag consist of numerator + tə<sup>5</sup> ʁmbə<sup>5 3</sup> + ɣæ<sup>33</sup>/ tɛ<sup>h</sup>ɛ<sup>33</sup>ku<sup>55</sup> + denominator, as in:

one fourth	rə <sup>33</sup> tə <sup>5</sup> ʁmbə <sup>33</sup> ɣæ <sup>33</sup> tɛ <sup>33</sup> tə <sup>5</sup> ʁmbə <sup>33</sup>
two fifths	ŋa <sup>55</sup> tə <sup>5</sup> ʁmbə <sup>5</sup> tɛ <sup>h</sup> ɛ <sup>3</sup> ku <sup>55</sup> nu <sup>55</sup> tu <sup>55</sup> mbə <sup>5 3</sup>
one tenth	ɦa <sup>5</sup> ko <sup>5</sup> tɛ <sup>55</sup> mbə <sup>55</sup> tɛ <sup>h</sup> ɛ <sup>33</sup> ku <sup>55</sup> tɛ <sup>55</sup> tə <sup>55</sup> mbə <sup>53</sup>

## 2.4 Multiple number expressions

Darmdo Minyag has two ways of expression for multiple numbers; the one is  $da^{55} + \text{cardinal number} + lo^{55}$ , in which the first syllable is derived from Tibetan *ldab*, the other is Tibetan cardinal number +  $lo^{55}$ .

E.g.:

double	$da^{55}te^5 lo^{55}$	triple	$da^{55}na^5 lo^{55}$
four times	$da^{55}son^5 lo^{55}$	sixth times	$da^{55}na^{33}lo^{55}$
eleven times	$da^{55}ha^5 ko^5 lo^{55}$	twelve times	$da^{55}ha^5 ti^{55}lo^{55}$

## 2.5 Approximate number expressions

Approximate numbers in Darmdo Minyag are expressed as a parallel positioning of two close numbers, e.g.:

two-three (days)	$na^{55}so^{33}$ (si <sup>33</sup> )
five-six (porcelains)	$na^{55}te^{hu53}$ (phə <sup>33</sup> a <sup>33</sup> )
Rounded numbers are expressed as “cardinal number + ti <sup>33</sup> / qa <sup>33</sup> so <sup>53</sup> ”	
twenties (year-old)	(kui <sup>53</sup> ) ni <sup>33</sup> te <sup>53</sup> ti <sup>33</sup>
thirties (persons)	(mə <sup>33</sup> ni <sup>53</sup> ) sə <sup>53</sup> teu <sup>53</sup> qa <sup>33</sup> so <sup>53</sup>
eleven or twelve	ha <sup>53</sup> ti <sup>53</sup> ha <sup>53</sup> ni <sup>53</sup> lo <sup>55</sup>
three or four	so <sup>55</sup> re <sup>53</sup> lo <sup>33</sup>

## 3 Classifiers of Darmdo Minyag

The establishment of classifiers is later than numerals. Darmdo Minyag has a rich inventory of classifiers, such as noun classifiers, collective classifiers, measurement units, verb classifiers, indefinite classifiers, and temporary classifiers.

### 3.1 Noun classifiers

Darmdo Minyag has many noun classifiers with various origins, e.g.:

one (person)	(mə <sup>33</sup> ni <sup>55</sup> ) ta <sup>55</sup> za <sup>53</sup>	one (drop)	ta <sup>53</sup> ndu <sup>53</sup>
one (circle)	ta <sup>53</sup> ko <sup>33</sup> wa	one (time)	ta <sup>53</sup> fa <sup>53</sup>
one (bowl)	phə <sup>53</sup> la <sup>55</sup> ta <sup>53</sup> lo <sup>33</sup>	one (grass)	hu <sup>53</sup> ta <sup>53</sup> za <sup>53</sup>
one (fragment)	ta <sup>53</sup> βe <sup>33</sup>	one (set)	ta <sup>53</sup> ʈʂə <sup>33</sup>
one (cluster)	ta <sup>53</sup> tsu <sup>33</sup>	one (bundle)	ta <sup>53</sup> pa <sup>33</sup> tʂa <sup>33</sup>
one (rice)	ta <sup>55</sup> lɔ <sup>53</sup>		

### 3.2 Collective classifiers

In using collective classifiers, the numeral ‘one’ is /ta-/, e.g.:

a pair	ta <sup>33</sup> ʂə <sup>53</sup> ʈa <sup>53</sup> ʂa <sup>33</sup>	a troop	ha <sup>55</sup> ta <sup>53</sup> ʂə <sup>54</sup> /ta <sup>53</sup> ʂə <sup>55</sup>
a few	ta <sup>55</sup> pi <sup>54</sup>	a class	ta <sup>55</sup> tsə <sup>54</sup>
a bundle	ta <sup>55</sup> hə <sup>54</sup>	two bundles	ni <sup>54</sup> ha <sup>55</sup>
a cluster	ta <sup>53</sup> tsu <sup>55</sup> /ta <sup>53</sup> βə <sup>33</sup>	a bucket	ta <sup>53</sup> sə <sup>53</sup>
a family	ta <sup>53</sup> ʈe <sup>33</sup>		

### 3.3 Measurement units

length	<i>chi</i> [nə <sup>5</sup> ho <sup>5</sup> ʃ] <i>cun</i> [ta <sup>5</sup> ʒnə <sup>3</sup> ʃ] <i>mthil</i> [ra <sup>55</sup> tə <sup>54</sup> gə <sup>55</sup> lə <sup>3</sup> ʃ] <i>gao</i> [ta <sup>5</sup> ho <sup>5</sup> ʃ] Elbows[ta <sup>54</sup> tə <sup>55</sup> tsʰa <sup>55</sup> ] <i>bao</i> [ta <sup>5</sup> ʒe <sup>5</sup> ʃ]
weight	<i>jin</i> (half-kilo) [dzə <sup>3</sup> ma <sup>5</sup> ʃ] <i>rgya srang</i> [dza <sup>55</sup> do ] gramme[γə <sup>2</sup> tho <sup>55</sup> ] <i>khal</i> [tə <sup>h</sup> a <sup>55</sup> bi ʃ] <i>pidai</i> [lə <sup>55</sup> ]      box [kʰo <sup>55</sup> ɛo <sup>54</sup> ] <i>tong</i> [zo <sup>55</sup> la <sup>54</sup> ] <i>sheng</i> (litre) [γə <sup>2</sup> tho <sup>55</sup> tə <sup>55</sup> si ʃ]
area	pillar [ta <sup>55</sup> dzə <sup>54</sup> γə <sup>3</sup> window hə <sup>2</sup> do <sup>55</sup> mu [ta <sup>55</sup> la <sup>3</sup> square metre dzə <sup>55</sup> kʰo <sup>5</sup> tɐ <sup>55</sup> lo <sup>3</sup> ʃ
time	hour [tə <sup>h</sup> ə <sup>2</sup> tsʰo <sup>5</sup> ʃ]      minute ka <sup>55</sup> ma <sup>3</sup> day [ma <sup>55</sup> tə <sup>3</sup> ʃ]

### 3.4 Verb classifiers

Frequent verb classifiers are as follows:

walk a step	ta <sup>5</sup> ma <sup>33</sup> dzə <sup>3</sup>	once	ta <sup>5</sup> tɐ <sup>5</sup> ʃ
cry once	ta <sup>5</sup> kə <sup>55</sup> ra <sup>55</sup>	hit once	ta <sup>5</sup> ʒa / <sup>54</sup> ɲuə <sup>5</sup> ʃ
take a bite	tap <sup>53</sup> βə <sup>3</sup>	kick once	ta <sup>55</sup> tso <sup>5</sup> ʃ
turn once	ta <sup>5</sup> ʒzu <sup>5</sup> ʃ	once	ta <sup>5</sup> ʒzu <sup>5</sup> ʃ
once	ta <sup>5</sup> ɲuə <sup>5</sup> ʃ	once	ta <sup>5</sup> ʒɿ <sup>3</sup> ɣə <sup>5</sup> ʃ

### 3.5 Indefinite classifiers

a few (things)	ta <sup>53</sup> pə <sup>3</sup>	a handful (barley)	ta <sup>5</sup> fɪa <sup>5</sup> ʃ
a little (water)	ta <sup>5</sup> ʒa <sup>5</sup> ʃ	a little (salt)	ta <sup>5</sup> ʒsʰæ <sup>5</sup> ʃ
a cluster (of tea)	ta <sup>5</sup> ʒsu <sup>5</sup> ʃ		

### 3.6 Temporary classifiers

Temporary classifiers in Darmdo Minyag are mainly derived from nouns. Some are complex classifiers, consisting of a noun + a classifier; the noun is a thing to be counted as a classifier, and is used combined with numerals for counting other things.

a cup of	ta <sup>5</sup> pʰə <sup>55</sup> la <sup>3</sup>	a basket of	bə <sup>5</sup> lə <sup>3</sup> ʒa <sup>3</sup> ʒi <sup>3</sup>
a ladle of	ta <sup>5</sup> tɛo <sup>3</sup>	a purse of	lə <sup>24</sup> ta <sup>5</sup> ʒi <sup>3</sup>
a box of (tsampa)	ta <sup>5</sup> ʒɛin <sup>55</sup> dzi <sup>3</sup>	a bag of	pʰə <sup>5</sup> tʰə <sup>55</sup> ta <sup>5</sup> ʒi <sup>3</sup>
a bucket of	tə <sup>31</sup> zu <sup>5</sup> la <sup>5</sup> ʃ		

As seen above, Darmdo Minyag has a rich number of classifiers; except for measurement units, there are many noun and collective classifiers. Both noun and verb classifiers use the construction of “cardinal number (/ta/ for ‘one’ ) + noun/verb”. In addition, when noun classifiers are used for ‘one’, ta<sup>55</sup>zə<sup>5</sup> ʃ is reserved for ‘persons’, ta<sup>55</sup>lə<sup>5</sup> ʃ for ‘round or block things’, ta<sup>55</sup>zæ<sup>5</sup> ʃ for ‘long things’ (e.g., grass, hair, rope, and bug), and ta<sup>53</sup>βə<sup>3</sup> for ‘chip-like things’ (e.g., sheet, leaf, and clothes). A collective classifier ‘one block of’ has two forms: ta<sup>5</sup> ʒsu<sup>55</sup> and ta<sup>5</sup> ʒbə<sup>3</sup> ʃ, of which the former is used for bigger things and the latter for smaller things.

## 4 Functions of numerals and classifiers of Darmdo Minyag

Numerals and classifiers of Darmdo Minyag have three principal functions: morphological function, syntactic function, and cultural function. We can assess prominence these functions through a descriptive linguistic method.

### 4.1 Morphological function

Numerals in Tibetan and Chinese have a strong word-formation competence, for example, compounds and fixed idioms, especially quadrisyllabic expressions, many of which contain numerals. On the other hand, the counterpart of Darmdo Minyag does not often function as a part of word formation. The numeral ‘one’ in Darmdo Minyag displays a very weak competence of making compounds: for example, /ta<sup>5</sup> pə<sup>3 3</sup> / ‘a few (things)’, /ta<sup>5</sup> ʔa<sup>5</sup> ʔ / ‘a little (water)’, and /ta<sup>5</sup> ʔsʰæ<sup>5</sup> ʔ / ‘a little (salt)’. Generally, these words are classified into indefinite quantifiers.

### 4.2 Syntactic function

(1) Darmdo Minyag has a rich number of classifiers; however, they cannot be used alone, and must take a numeral before them. Numerals in Darmdo Minyag, however, can be directly combined with nouns, and do not have to take classifiers to count nouns, e.g.:

one bowl	pʰə <sup>5</sup> ʔla <sup>55</sup> ta <sup>5</sup> ʔlo <sup>33</sup> bowl one-CLS	one egg	va <sup>33</sup> va <sup>33</sup> ta <sup>53</sup> -lo <sup>33</sup> egg one-CLS
one horse	ʔi <sup>33</sup> ta <sup>5</sup> ʔlo <sup>33</sup> horse one-CLS	one rice	dʒe <sup>2</sup> ta <sup>55</sup> -lo <sup>33</sup> rice one-CLS
three flowers	me <sup>5</sup> tɔ <sup>33</sup> ʔo <sup>5</sup> ʔlo <sup>33</sup>		
eight fish	ʔua <sup>5</sup> ʔcao <sup>5</sup> ʔzæ <sup>5 5</sup>		

The situation that numerals directly connected to nouns also appears in Kham Tibetan, e.g., *lcags smyug drug* ‘six pens’, *las don gcig* ‘one thing’, *bzo ba bzhi* ‘four workers’, etc. To the contrary, this type is rare in Chinese. In addition, classifiers in Darmdo Minyag cannot be used alone, and they have to be combined with numerals; when the numeral /ta-/ ‘one’ appear with a classifier, the vowel will change, e.g.:

- (ta) > tɛ<sup>55</sup>βv<sup>5 3</sup> ‘one bird’ a -ɛ
- (ta) > tɔ<sup>55</sup>lɔ<sup>5 3</sup> ‘one hat’ a -ø
- (ta) > tɛ<sup>55</sup>tsa<sup>53</sup> ‘one story’ a -ɐ
- (ta) > ta<sup>55</sup>pʰo ‘one broom’ ɐ -a
- (ta) > tɛp<sup>3</sup>ʂhi ‘one sentence’ ɐ -ɛp
- (ta) > tɛ<sup>55</sup>ɣu<sup>55</sup> ‘one time’s food’ a -ɐ

(2) In Darmdo Minyag, the order of a numeral and a classifier is “numeral+classifier”, and a quantifier follows its noun head. E.g.:

- tsʰu<sup>55</sup> ta<sup>55</sup>-dʒɛ<sup>5</sup> mɛ<sup>33</sup> ‘half a kilo of salt’
- salt one-half kilo
- ndzu<sup>55</sup> ta<sup>55</sup>-ɣu<sup>55</sup> ‘one time’s food’

food one-time

εα<sup>55</sup> ηα<sup>55</sup> p<sup>h</sup>ə<sup>55</sup> t<sup>h</sup>ə<sup>33</sup> ‘five sacks of barley’

barley five-sack

re ʒ<sup>h</sup>α<sup>55</sup> go ʒ<sup>h</sup>ε<sup>33</sup> ‘ten forearm-lengths’ cloth’

cloth ten-forearm-length

(3) When a quantifier functions as an adverb, it appears before a predicate head. E.g.,

ta<sup>55</sup>-zə<sup>5</sup> k<sup>h</sup>ə<sup>33</sup> ʒ<sup>h</sup>ε<sup>5</sup> ʒ<sup>3</sup> ‘see once’

one-time see

so<sup>55</sup>-ko<sup>5</sup> ʒ<sup>3</sup> wα<sup>33</sup> ‘circumambulate thrice’

three-around circumambulate

‘I circumambulated the monastery thrice.’

ηə<sup>55</sup> gon<sup>55</sup> pa<sup>33</sup>-le<sup>33</sup> so<sup>55</sup>-ko<sup>5</sup> ʒ<sup>3</sup> wα<sup>33</sup> tə<sup>55</sup> tɛa<sup>55</sup> ηα<sup>33</sup>

I monastery-LOC three-around circumambulate go-PFT

‘I went to see my grandfather once.’

ηε<sup>55</sup> βα<sup>55</sup> βu<sup>53</sup>-le<sup>33</sup> tɐ<sup>55</sup>-zə<sup>35</sup> k<sup>h</sup>ə<sup>33</sup>-jε<sup>53</sup> k<sup>h</sup>u<sup>55</sup>-tɛap<sup>54</sup> ri<sup>33</sup> xα<sup>55</sup> ηα<sup>33</sup>

I.GEN grandfather-LOC one-time see-go-PFT

(4) When Minyag people observe the external world outside, they tend to classify things based on their external form. Moreover, Minyag people distinguish animate things from inanimate things by using different modifiers, and so do they between human beings and animals. Classifying features reflect Minyag people’s categorisation of knowledge in their language’s lexicon, and they classify things and actions based on things’ form and actions’ way. In addition, several classifiers in Darmdo Minyag can be used not only as quantity but also as a modifying feature. E.g.:

[1] /ta<sup>55</sup> lɔ<sup>55</sup>/ for round-shaped things, e.g., bowl, egg, rice, eyeball, etc.

p<sup>h</sup>ə ʒ<sup>h</sup>α<sup>55</sup> ta<sup>55</sup> lɔ<sup>55</sup> ‘one bowl’

va ʒ<sup>h</sup>α<sup>55</sup> ʒ<sup>h</sup>α<sup>55</sup> lɔ<sup>55</sup> ‘one egg’

dze ʒ<sup>h</sup> ta<sup>55</sup> lɔ<sup>55</sup> ‘one rice’

[2] /tɐ<sup>55</sup> zæ<sup>5</sup> ʒ<sup>3</sup>/ for long-shaped things, e.g., water, rope, grass, knife, hair, letter, etc.

wu<sup>3</sup> va<sup>55</sup> tɐ<sup>55</sup> zæ<sup>5</sup> ʒ<sup>3</sup> ‘one rope’

fiα<sup>55</sup> mo ʒ<sup>h</sup> tɐ<sup>55</sup> zæ<sup>5</sup> ʒ<sup>3</sup> ‘one root’

tɐ<sup>h</sup>ə<sup>55</sup> tɐ<sup>55</sup> zæ<sup>5</sup> ʒ<sup>3</sup> ‘one drop of water’

rap<sup>55</sup> tɐ<sup>55</sup> zæ<sup>5</sup> ʒ<sup>3</sup> ‘one road’

[3] /tɐ<sup>55</sup> βæ<sup>5</sup> ʒ<sup>3</sup>/ for thin-shaped things, e.g., paper, sheet, etc.

ɕe <sup>55</sup> ho <sup>3 3</sup> tɕ <sup>55</sup> βæ <sup>53</sup>	‘one paper’
ɦə <sup>55</sup> ri <sup>54</sup> tɕ <sup>55</sup> βæ <sup>5 3</sup>	‘one blanket’
to <sup>55</sup> va <sup>54</sup> tɕ <sup>55</sup> βæ <sup>53</sup>	‘one piece of wood’
ɕe <sup>55</sup> tɕ <sup>55</sup> βæ <sup>5 3</sup>	‘one piece of steel’

[4] /tɑ<sup>33</sup>p<sup>h</sup>o<sup>55</sup>/ for ellipsis-shaped things, e.g., broom, wood, flag, etc.

rə <sup>55</sup> tɑ <sup>33</sup> p <sup>h</sup> o <sup>55</sup>	‘broom’
dzɛ <sup>55</sup> ɦo <sup>54</sup> tɑ <sup>3 3</sup> p <sup>h</sup> o <sup>55</sup>	‘bamboo-made brush’
mə <sup>55</sup> tɑ <sup>3 3</sup> p <sup>h</sup> o <sup>55</sup>	‘one tail’
ts <sup>h</sup> i <sup>55</sup> ro <sup>33</sup> tɑ <sup>33</sup> p <sup>h</sup> o <sup>55</sup>	‘one wood’

[5] /tɕ<sup>3 3</sup> ɕɐ<sup>53</sup>/ for square-shaped things, e.g., stone, mud, cattle excrement, etc.

nda <sup>55</sup> pa ʈɕ <sup>3 3</sup> ʈɕɐ <sup>5 3</sup>	‘one pile of mud’
dzo <sup>55</sup> tɕ <sup>3 3</sup> ʈɕɐ <sup>53</sup>	‘one stone’
tɕ <sup>h</sup> a <sup>55</sup> bu ʈɕ <sup>3 3</sup> ʈɕɐ <sup>5 3</sup>	‘one pile of cattle excrement’
zɕ <sup>55</sup> tɕ <sup>3 3</sup> ɕɐ <sup>53</sup>	‘one piece of field’

(5) Darmdo Minyag has reduplicated forms to express quantity. E.g.:

tei ʈɕ <sup>3 3</sup>	‘each’	tɕ <sup>3 3</sup> ʈɕ <sup>5 5</sup> ʈɕ <sup>3 3</sup> ʈɕ <sup>3 3</sup>	‘some’
ŋa <sup>55</sup> za ʈɕ <sup>3 3</sup>	‘five’	ŋa <sup>55</sup> za ʈɕ <sup>3 3</sup> ŋa <sup>55</sup> za ʈɕ <sup>3 3</sup>	‘five for each’
ta <sup>55</sup> xa <sup>5 3</sup>	‘some’	ni <sup>55</sup> ni <sup>55</sup> ta <sup>55</sup> xa <sup>5 3</sup>	‘several’
tsə <sup>55</sup> tsa <sup>5 3</sup>	‘little’	tsə <sup>55</sup> tsa <sup>5 5</sup> tsə <sup>55</sup> tsa <sup>5 3</sup>	‘too little’
tɕ <sup>h</sup> u <sup>55</sup> tə ʈɕ <sup>3 3</sup> ki <sup>55</sup> le ʈɕ <sup>3 3</sup>	‘six’	tɕ <sup>h</sup> u <sup>55</sup> tə ʈɕ <sup>3 3</sup> ki <sup>55</sup> le ʈɕ <sup>3 3</sup> tɕ <sup>h</sup> u <sup>55</sup> tə ʈɕ <sup>3 3</sup> ki <sup>55</sup> le ʈɕ <sup>3 3</sup>	‘six parts’

(6) Several classifiers in Darmdo Minyag are loans from Khamts Tibetan or Chinese. E.g.,

k <sup>h</sup> e <sup>5</sup> ʈɕ <sup>3 3</sup> tɕ <sup>3 3</sup>	‘one gramme’	tɕ <sup>h</sup> ə <sup>5</sup> ʈɕ <sup>3 3</sup> tɕ <sup>3 3</sup>	‘one yuan’
tɕɐ <sup>5</sup> ʈɕ <sup>3 3</sup> ʈɕ <sup>3 3</sup> ʈɕ <sup>3 3</sup>	‘one line’	gɔ <sup>55</sup> li <sup>5</sup> ʈɕ <sup>3 3</sup> tɕ <sup>3 3</sup>	‘one km’
p <sup>h</sup> e <sup>33</sup> zi <sup>55</sup> tɕ <sup>55</sup> βæ <sup>5 3</sup>	‘one plate’	mo <sup>55</sup> ɦa ʈɕ <sup>3 3</sup> ko <sup>55</sup> si <sup>33</sup>	‘ten mu’
va <sup>33</sup> ŋa <sup>55</sup> dza <sup>55</sup> ma <sup>5 3</sup>	‘five half-kg (2.5 kg) of butter’		

### 4.3 Cultural function

Chinese numerals have a relatively strong cultural function. “Cultural function” denotes various cultural meanings symbolised by given words and expressions, e.g., ‘how many’, ‘derogatory’, and ‘universal’ meanings. Chinese numerals possess very rich cultural meanings, e.g., ‘three’ denotes ‘many, many times’ (*san fan wu ci* ‘thrice + five times’ = ‘many times’) and universal meaning (*san jiao jiu liu* ‘people of all sorts’); ‘nine’ denotes ‘extremely many’ (*jiu shao* ‘highest heavens’, *jiu si yi sheng* ‘Narrow escape from death’); ‘four’ is considered as an un auspicious word due to its similar sound to ‘die’ and its use in



telephone numbers is avoided. In Tibetan, a cardinal number ‘nine’ (*dgu*) denotes ‘many’ when it is a part of specific compounds, e.g., *skye dgu* ‘people’, ‘dod dgu ‘various greeds’, *ngan dgu tshang ba* ‘evils’, and *bzang dgu* ‘all beauties’. Darmdo Minyag lacks this function, and detailed investigations are needed.

## 5 Contractive study of Darmdo Minyag numeral expressions

### 5.1 Contrast of numerals of Darmdo Minyag and rGyalrongic languages

Tibetan	Situ-rGyalrong (lCogtse) <sup>1</sup>	Darmdo Minyag	Geshitsa <sup>2</sup>	Meaning
gteig	kə-tek	tɕ <sup>53</sup> lo <sup>3 3</sup>	rap	one
gn̥is	kə-nəs	nə <sup>53</sup> lo / <sup>55</sup> dʒɛ <sup>55</sup>	wne	two
gsum	kə-sam	so <sup>53</sup> lo <sup>3 3</sup>	wshu	three
bzi	kə-wdi	rɕ <sup>53</sup> lo <sup>3 3</sup>	wza	four
l̥ja	kə-m̥jo	na <sup>55</sup> lo <sup>3 3</sup>	w̥ja	five
drug	kə-t̥ʂok	tɕ <sup>h</sup> u <sup>53</sup> lo <sup>3 3</sup>	w̥tɕhap	six
bdun	kə-ɣnəs	ɲu <sup>53</sup> lo <sup>3 3</sup>	s̥ɲe	seven
br̥gjad	wə-r̥jat	ɕyɕ <sup>53</sup> lo <sup>3 3</sup>	r̥jɕ	eight
dgu	kə-ngu	gɕ <sup>53</sup> lo <sup>3 3</sup>	ɲga	nine
bteu	ʃt̥ʂə	tɕ <sup>h</sup> u <sup>53</sup> lo <sup>3 3</sup>	z̥ɣa	ten

From a morphological viewpoint, Situ-rGyalrong numerals consist of a prefix and a native word, i.e., “kə/wə+cardinal numeral”; Darmdo Minyag numerals simplified themselves and followed by a suffix, i.e., “cardinal numerals+lo”. Its prefixes have already been integrated to the root, and after that it applied a suffix construction. Geshitsa and Tibetan still maintain the formation “complex initial+root”. E.g., gteig ‘one’, gn̥is ‘two’, and gsum ‘three’ in Tibetan, and wne ‘two’, wshu ‘three’, and wza ‘four’ in Geshitsa. However, the word form for ‘ten’ is different: ʃt̥ʂə in Situ-rGyalrong, and z̥ɣa in Geshitsa; both Tibetan and Darmdo Minyag use a prepalatal affricate initial, but the latter changed into an aspirated initial, which should be investigated.

### 5.2 Contrast of numerals of Darmdo Minyag and Khams Tibetan

#### 5.2.1 Contrast of numerals over ‘hundred’

Meaning	Darmdo Minyag	Khams Tibetan (Derge)
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<sup>1</sup> Qu Ai tang, Jinsong, “The category of Tibetan grammar”, *Minority Languages of China*, No. 6, 2016, page 5.

<sup>2</sup> Duoerji , *A study of the Dao Fu’s Geshitsa language*, China Tibetology Publishing House, First edition of April 1998, page88.

hundred	ɦa ʒo <sup>5</sup> ʒa ʒo	dza <sup>55</sup>
thousand	tō <sup>5</sup> ʔō <sup>55</sup> tsha <sup>5 3</sup>	toŋ <sup>55</sup>
ten thousand	tʂhə <sup>5</sup> ʔtʂhi <sup>55</sup> tshu <sup>5 3</sup>	tʂhə <sup>55</sup>
hundred thousand	nbu ʔtʂha <sup>5 3</sup>	nbə <sup>55</sup>
million	sa <sup>5</sup> ʒa <sup>33</sup>	sa <sup>5</sup> ʒa <sup>33</sup>
ten million	ɕɛ ʂwa	ɕɛ ʂwa
milliard	tō <sup>2</sup> /tōje <sup>5 3</sup>	doŋ ʂə <sup>55</sup>

Based on this table, numerals over ‘hundred’ in Darmdo Minyag are loans from Khams Tibetan except for a native word /ɦa ʒo<sup>5</sup> ʒa ʒo/ ‘hundred’. Judging from this situation, we can consider that Minyag people have had a number concept up to one hundred and that due to the strengthened recognition on numbers in a recent time they obtained the concept more than one hundred. To sum up, Darmdo Minyag has a multistrata feature of numerals, which implies that numerals belong to an open word class.

### 5.2.2 Contrast of verb classifiers

Darmdo Minyag	Khams Tibetan	Meaning
ta <sup>5</sup> ʔap <sup>5</sup> ʔhap <sup>5 3</sup> xə <sup>33</sup>	ཐེངས་གཅིག་འགྲོ། [tʰe <sup>55</sup> tɕi ʔhdzo <sup>55</sup> ]	go once
ta <sup>5</sup> ʔuə <sup>5 3</sup>	ཆར་གཅིག་བཤད། [tʂar <sup>5</sup> tɕi ʔɕa <sup>5</sup> ]	talk once
ta <sup>5</sup> ʔap <sup>5</sup> ʔhap <sup>5</sup> ʔzo <sup>33</sup>	ལན་གཅིག་གཏོང། [lɛn ʂtɕi <sup>53</sup> toŋ <sup>5</sup> ]	dispatch once
ta <sup>55</sup> tso <sup>5 3</sup>	རྒྱུ་རྒྱུ་གཅིག་རྒྱུ། [kaŋ ʂ do <sup>5</sup> tɕi <sup>5 3</sup> dza <sup>33</sup> ]	kick once
ta <sup>5</sup> ʔa /ʂa <sup>54</sup> ʔuə <sup>5 3</sup>	གཅིག་རྒྱུ་བ། [tɕi <sup>55</sup> dza <sup>5</sup> ʔpa]	hit once
ta <sup>5</sup> ʔə <sup>55</sup> ra <sup>55</sup>	ཐེངས་གཅིག་འབོད། [tʰe <sup>55</sup> tɕi ʔhbo <sup>33</sup> ]	shout once

1. Khams Tibetan’s word order of classifier, verb, and numeral is: classifier+numeral+verb

ཐེངས་གཅིག་འགྲོ། ‘go once’      ཆར་གཅིག་བཤད། ‘tell once’

time 1 go                                      time 1 tell

2. Darmdo Minyag’s word order of classifier, verb, and numeral is: numeral+classifier+verb

ta<sup>55</sup> ʔp ʂkʰə ʔɕe<sup>5 3</sup> ‘see once’                      ta<sup>5</sup> ʔə<sup>55</sup> ra<sup>55</sup> ‘shout once’

1 time    see                                      1    time shout

To sum up, the word order of the two languages is not the same. The word order of numeral quantifiers in Darmdo Minyag is identical to the counterpart of Chinese, i.e. it consists of a numeral preceding a classifier.

## 6 Conclusion

Based on the analysis and description above, we can conclude:

(1) Darmdo Minyag has a decimal system, the same as its relative languages, and has the fixed constructions such as “cardinal number+lo” from one to nine, “ɦa+cardinal number+lo” from ten to nineteen, “ten’s place’s cardinal number +ɦuə<sup>5</sup> ʔ+one’s place’s cardinal number+lo” from twenties to forties, and “ten’s place’s cardinal number +gag+one’s place’s cardinal number+lo” from fifties to nineties.

(2) The numerals of Darmdo Minyag belong to an open class, and they have different origins. The cardinal numbers from 1 to 10 are native words, and those more than 100 are Khams Tibetan loanwords ('100' is a native word:  $\text{fia}^{39}\text{o}^5 \text{ʒa}^{39}\text{o}$ ).

(3) Among ten cardinal numbers from 1 to 10 of Darmdo Minyag, 'two' has two usages: " $\text{nə}^{55}\text{lo}^{55}/\text{tə}^{31}\text{dze}^{55}$ ",  $\text{tə}^{31}\text{dze}^{55}$ . The latter also means 'a pair of'. Paying attention to the structure, we find many disyllabic or polysyllabic words, and no monosyllabic ones.

(4) Non-rounded numbers of any ten's cannot put ten's place and one's place in parallel, but they need a connecting element  $\text{ru}^5$  or  $\text{gag}$  in between.

(5) In Darmdo Minyag, numerals and nouns are directly connected, and classifiers are unnecessary.

(6) Darmdo Minyag has a rich number of classifiers; of them, except for measurement units, classifiers not only denote a quantity unit but also form a modifying phrase.

(7) Comparing cardinal numbers in Darmdo Minyag with the counterparts in Situ-rGyalrong and Geshitsa, we find that, morphologically, Situ-rGyalrong's construction is "prefix+root", i.e., " $\text{kə/wə}+\text{cardinal number}$ ", whereas Darmdo Minyag's has been simplified and is followed by a suffix. i.e., "root+lo".

(8) Additionally, the competence of lexical derivation and cultural function of Darmdo Minyag cardinal numbers is relatively weak and non-productive.

(9) The word order of a quantifier and a head depends on a noun phrase or a verb phrase. In a noun phrase, the order is "noun+numeral", whereas in a verb phrase, it is "numeral+classifier+verb".